UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte NICHOLAS SHEPPARD BROMER

Appeal No. 2005-1029
Application No. 09/708,658

ON BRIEF

Before FRANKFORT, McQUADE, and NASE, Administrative Patent Judges.

NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 to 6, which are all of the claims pending in this application.

We REVERSE.

BACKGROUND

The appellant's invention relates to cutting blades, such as knives or razors, having a thin hard layer on one side (specification, p. 1). A copy of the dependent claims under appeal is set forth in the appendix to the appellant's brief. Claim 1, the only independent claim on appeal, reads as follows:

> A blade, comprising:
> a substrate including a specular[1] surface, wherein at least some reflected image is visible on the surface; and
> a thin plate deposited on the specular surface, the plate comprising a plate material that is harder than the substrate;
> wherein the substrate is beveled toward a cutting edge of the blade; and
> wherein the cutting edge comprises the plate extending to the cutting edge on a single side of the blade;
> whereby the cutting edge is straight in a cutting direction.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Ignatieff	1,607,083	Nov. 16, 1926
Gerber	4,653,373	Mar. 31, 1987
Warner et al. (Warner)	5,077,901	Jan. 7, 1992
Wexler	5,630,275	May 20, 1997

[1] Page 9 of the appellant's specification defines "specular" to mean that "at least some reflected image is visible on a surface, but does not mean that the surface is polished or mirror-like --any surface on which any reflected image is at all visible is specular, and distortion in that image, no matter how much, will not prevent the surface from being "specular"."

Claims 1 and 6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Gerber.

Claim 2 stands rejected under 35 U.S.C. § 103 as being unpatentable over Gerber in view of Ignatieff.

Claims 3 and 4 stand rejected under 35 U.S.C. § 103 as being unpatentable over Gerber in view of Ignatieff and Wexler.

Claim 5 stands rejected under 35 U.S.C. § 103 as being unpatentable over Gerber in view of Warner.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejections, we make reference to the answer (mailed May 18, 2004) for the examiner's complete reasoning in support of the rejections, and to the brief (filed February 23, 2004) and reply brief (filed May 27, 2004) for the appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art references, and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations which follow.

The anticipation rejection

We will not sustain the rejection of claims 1 and 6 under 35 U.S.C. § 102(b).

To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently. In re Schreiber, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). As stated in In re Oelrich, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981) (quoting Hansgirg v. Kemmer, 102 F.2d 212, 214, 40 USPQ 665, 667 (CCPA 1939)) (internal citations omitted):

> Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. If, however, the disclosure is sufficient to show that the natural result flowing from the operation as taught would result in the performance of the questioned function, it seems to be well settled that the disclosure should be regarded as sufficient.

Thus, a prior art reference may anticipate when the claim limitation or limitations not expressly found in that reference are nonetheless inherent in it. See In re Oelrich, 666

F.2d at 581, 212 USPQ at 326; Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 630, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates. See In re King, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986). However, inherency is not necessarily coterminous with the knowledge of those of ordinary skill in the art. See Mehl/Biophile Int'l Corp. v. Milgraum, 192 F.3d 1362, 1365, 52 USPQ2d 1303, 1305-06 (Fed. Cir. 1999); Atlas Powder Co. v. Ireco Inc., 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1946-47 (Fed. Cir. 1999).

Gerber's invention relates generally to knife blades and deals more particularly with the construction of and the method for making knife blades for cutting sheet material which blades exhibit some self sharpening characteristics. As shown in Figure 2, knife blade 10 comprises a cutting portion 24 and a strengthening portion 26 integrally connected to one another. The cutting portion 24 includes two beveled cutting faces 25 and 36 which converge upon one another to yield a cutting edge 40. Both of the faces 25 and 36 may have a slight cylindrical concavity due to hollow grinding of the base material. The hollow ground increases the sharpness of the cutting portion 24.

Gerber's blade 10 is formed from an inner base or support body 30 of relatively high wear material and an outer relatively wear resistant coating 32. In the illustrated embodiment, the outer coating 32 surrounds all of the base 30 in its final form except for the face 36 of the cutting portion 24. To provide a coating which is more wear resistant than the base 30, the coating 32 is formed of a harder material than the base 30. By way of example, the base 30 is made of hardened tool steel having a hardness of 60 Rockwell C or softer and the outer coating 32 is made of titanium nitride having a hardness of 80-90 Rockwell C. The thickness of the outer coating may be in the range 0.1/1,000 inches to 1/1,000 inches with a suggested thickness of 0.5/1,000 inches which thickness is substantially uniform throughout the coating. When the blade 10 is sharp, the cutting edge 40 is defined primarily by the exposed edge of the coating 32.

Figures 3-5 of Gerber illustrate a method for producing the blade 10. Initially, as shown in Figure 3, the base 30 is provided of hardened steel, which base may be formed by a machining process. Then as shown in Figure 4, the base 30 is coated with the titanium nitride. In the illustrated embodiment, the coat covers virtually the entire surface of the base 30 including both faces 36 and 25 of the cutting portion 24. Next, as shown in Figure 5, the face 36 of the cutting portion 24 is ground by the grinding wheel 43 or another grinding wheel to remove the associated portion of the coat 32, to sharpen the cutting portion 24, and to expose an edge of the coat 32 to form the cutting

edge 40. Herein lies a virtue of the design of the blade 10. Because the face 25 is coated with the relatively hard material and is exposed to the sheet material during cutting, even if the grinding wheel is somewhat misaligned so that its axis is not aligned precisely parallel to the plane 37 and the cutting edge is not defined entirely by the exposed edge of the coating 32 but is partially defined by the base material 30, the blade 10 will still be effective in cutting because one side of the cutting portion will still be defined by the very hard coating material. Moreover, as the cutting portion wears, the relatively soft base material located at the cutting edge will tend to wear faster than the adjacent, relatively hard coating causing the cutting edge 40 to be defined more and more by the coating material and less and less by the relatively soft base material.

Gerber teaches (column 4, lines 48-60) that:

> The grinding wheel 43 may have a surface covered by either fine or coarse grit. If the fine grit is utilized, then the blade 10 may be reciprocated during the grinding process to ensure uniform grinding and to provide the face 36 with a smooth surface. If the coarse grit is utilized, it may score the face 36 and the exposed cutting edge 40 to make the cutting portion 24 ragged or serrated. If the coarse grit is utilized on the grinding wheel 43, then the blade 10 may not be reciprocated in some cases or may be reciprocated slowly in other cases while the grinding wheel engages the cutting portion 36 so that the scores produced by the grit intersect the cutting edge 40.

If the coating 32 on the cutting portion 24 recedes more rapidly than the adjacent base material, Gerber teaches (column 3, lines 60-68) that:

> the face 36 may be ground by the grinding wheel assembly 18 to again expose the coating 32 at the cutting edge. The grinding assembly 18 comprises an arm 39 which is pivotally mounted to the housing 19 and a grinding wheel 43 which is carried by the arm 39. The arm 39 may be pivoted downwardly so that the grinding wheel engages the face 36 with an axis 41 of the wheel parallel to the cutting edge 40.

The appellant argues that claim 1 is not anticipated by Gerber since Gerber fails to disclose a thin plate deposited on a "specular" surface. We agree. While Gerber does disclose that both of the faces 25 and 36 may have a slight cylindrical concavity due to hollow grinding of the base material (i.e., the hardened steel), Gerber does not disclose that the hollow grinding of the base material results in a "specular" surface. The examiner's position that the hollow grinding of Gerber's base material inherently results in a "specular" surface is sheer speculation. As stated above, inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. In this case, the disclosure of Gerber is not sufficient to show that the natural result flowing from the hollow grinding of Gerber's base material leads to a "specular" surface for the reasons adequately set forth in the appellant's briefs.

For the reasons set forth above, the decision of the examiner to reject claim 1 and claim 6 dependent thereon under 35 U.S.C. § 102(b) is reversed.

The obviousness rejections

We have also reviewed the references to Ignatieff, Wexler and Warner additionally applied in the rejection of dependent claims 2 to 5 but find nothing therein which makes up for the deficiency of Gerber discussed above with respect to independent claim 1. Accordingly, we cannot sustain the examiner's rejection of appealed claims 2 to 5 under 35 U.S.C. § 103.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1 and 6 under 35 U.S.C. § 102(b) is reversed and the decision of the examiner to reject claims 2 to 5 under 35 U.S.C. § 103 is reversed.

REVERSED

CHARLES E. FRANKFORT
Administrative Patent Judge

JOHN P. McQUADE
Administrative Patent Judge

JEFFREY V. NASE
Administrative Patent Judge

) BOARD OF PATENT APPEALS AND INTERFERENCES

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